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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,425	09/24/2003	Ashok N. Mathur	06328P USA	4239

23543 7590 08/10/2004

AIR PRODUCTS AND CHEMICALS, INC.  
PATENT DEPARTMENT  
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EXAMINER

SHAW, ELIZABETH ANNE

ART UNIT PAPER NUMBER

3644

DATE MAILED: 08/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/669,425

Applicant(s)

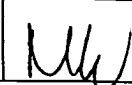
MATHUR ET AL.

Examiner

Elizabeth A. Shaw

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-17 is/are allowed.
- 6) ☒ Claim(s) 1-14 and 18-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 9/24/03 & 5/7/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4-7 and 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Sevic (PTO-1449-I 5,893,337). Sevic shows an aquafarming system for shrimp comprising a containment vessel or pond containing a plurality of marine animals and an aqueous medium, a sensor for measuring the content of dissolved oxygen within the aqueous medium and an ozonizer for creating ozone and for dissolving the ozone into the aqueous medium through injection, see col. 2, lines 34-52 to increase the dissolved oxygen content and to maintain the dissolved oxygen content to more than 5/mg per liter. It is considered that the ozonizer is located within the containment vessel sufficiently to inject the ozone into the medium. Further, though not shown, it is considered that the food for the marine animals is injected or in communication with the injecting elements, see col. 3, lines 3-5. Also, though not shown, it is considered that a central processing unit is present and in electrical communication with the sensors, see col. 3, lines 20-28 to indicate levels of oxygen content in the containment vessel and remotely activate the ozonizer generators, the generators, though notably used prior to feeding times are capable of activation at any time of the day, see col. 3, lines 28-31. The aquafarming system is considered to be

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capable of being used in multiple containment vessels with at least one oxygen injector per vessel, see col. 3, lines 33-35.

Claims 1, 2, 4, 5 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Shaar (PTO-1449-K 5,839,391). Shaar discloses a system and method of use capable of providing oxygen having a purity of 60% or greater for aquafarming marine animal specifically shrimp comprising a containment vessel 30, 50 capable of containing a plurality of marine animals and an aqueous medium, at least one oxygen injector 5, 6, 6A disposed within at least one location in the containment vessel 30, 50; an oxygen generator/ozone source (pump system 2 in use with the teaching of col. 4, lines 40-47) in fluid communication with the oxygen injector 5, 6, 6A to increase the dissolved oxygen within the aqueous medium and a food source 3 in fluid communication with the oxygen injector 5, 6, 6A.

Claims 18, 19 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Plocek (PTO-1449-B 3,913,525). Plocek shows a containment vessel 11 for aquafarming marine animals comprising at least one aeration device 19 and an aqueous medium within the containment vessel; the aeration device 19 move the aqueous solution via bubbles 27 to form at least one circular vortex 29 comprising the movement of at least the majority of the aqueous medium in the vortex. Plocek shows the formation of two complimentary vortices, therefore it is considered that the introduction of another aeration device would do the same. The containment vessel 11 having a bottom 16 sloped to allow the collection of waste and sludge in an area less than 20% of the bottom

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sevic in view of Woltman (PTO-1449-D 5,014,647). Sevic does not disclose a medicine source in fluid communication with an oxygen injector. Woltman teaches and aquafarming system having a medicine source 10 in communication with oxygen injectors/aspirators, col. 2, lines 25-28. With respect to claim 3, to use a medicine source of Woltman with the system of Sevic would have been obvious to one skilled in the art to having added a in order to assist in maintaining the health of the marine animals.

Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sevic in view of Kajisono. Sevic does not disclose an oxygen generator being mounted on wheels or floatable support. Kajisono teaches a water purifier apparatus 40 mounted on a floatable support 11. With respect to claims 8-10, to make the oxygen generator of Sevic portable as shown by Kajisono would have been obvious to one skilled in the art in order to ensure circulation of purified, oxygenated, or other fortified water to all portions of the animal containment unit, particularly if the unit is shaped irregularly. Further it has been held that making an old device portable or movable without

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producing any new and unexpected result involves only routine skill in the art. In re Lindberg, 93 USPQ 23 (CCPA 1952).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shaar in view of Woltman. Shaar does not disclose the use of a medicine source in communication with the oxygen injectors. Woltman teaches an aquafarming system having a medicine source 10 in communication with oxygen injectors/aspirators, col. 2, lines 25-28. With respect to claim 3, to use the medicine source of Woltman with the system of Shaar would have been obvious to one skilled in the art in order to assist in the maintaining of the health of the marine animals.

Claims 6 and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shaar in view of Sevic. Shaar does not teach the use of the oxygen generator being a vacuum swing absorption type, a specific dissolved oxygen content and the use of sensors and more oxygen at night than the day. Sevic teaches that both the vacuum swing absorption generator and pressure swing generator are known and the use of either generator to provide oxygen would be beneficial, see col. 3, lines 54-60. With respect to claims 6 and 11, to use the vacuum swing absorption generator of Sevic with the system of Shaar would have been obvious to one skilled in the art in order to achieve a greater percentage by volume of oxygen. With respect to claims 12 and 13, to use the timer control and sensors of Sevic with the system of Shaar would have been obvious to one skilled in the art in order to control the generators output to activate them at a time when it is most efficient and necessary, such as lower oxygen levels observed at night. With respect to claim 14, to allow the biomass of the shrimp to be at least 0.5

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kg/m<sup>2</sup> or greater in the system of Shaar as taught by Sevic, see col. 1, lines 58-60, would have been obvious to one skilled in the art to have maintained the biomass density of the marine animals within the containment vessel at any given density which would result in the maximum operability of the containment vessel and still ensure the health of the marine animals

Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shaar in view of Kajisono. Shaar does not disclose an oxygen generator being mounted on wheels or floatable support. Kajisono teaches a water purifier apparatus 40 mounted on a floatable support 11. With respect to claims 8-10, to make the oxygen generator of Shaar portable as shown by Kajisono would have been obvious to one skilled in the art in order to ensure circulation of purified, oxygenated, or other fortified water to all portions of the animal containment unit, particularly if the unit is shaped irregularly. Further it has been held that making an old device portable or movable without producing any new and unexpected result involves only routine skill in the art. In re Lindberg, 93 USPQ 23 (CCPA 1952).

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sevic. With respect to claim 14, to allow the biomass of the shrimp to be at least 0.5 kg/m<sup>2</sup> or greater in the system of Sevic, see col. 1, lines 58-60, would have been obvious to one skilled in the art to have maintained the biomass density of the marine animals within the containment vessel at any given density which would result in the maximum operability of the containment vessel and still ensure the health of the marine animals

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Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Plocek in view of Ido (6,357,392). Plocek does not disclose the exact flow rate of the aqueous medium. Ido teaches the use of pumps causing a current flow of 5 to 20 cm/sec, see col. 14, lines 1-4. With respect to claims 20 and 21 to move the aqueous medium at a flow rate of between 4 and 20 cm/sec as taught by Ido in the system of Plocek would have been obvious to one skilled in the art in order to provide enough aqueous medium movement to be closer to the conditions of the sea and to allow for full aeration, the drift of the animals and to move the waste or sludge from the general living area to the bottom.

#### ***Allowable Subject Matter***

Claims 15-17 are allowed.

#### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Included for further reference on aquasystems are: Smolski (3,452,966), Kajisono (5,336,399), Kirby (5,640,930) and Burgess (5,938,981).

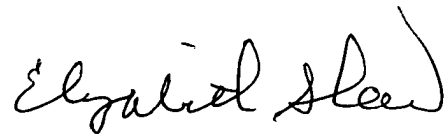
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth A. Shaw whose telephone number is 703-308-1853. The examiner can normally be reached on M-Th 9:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael J. Carone can be reached on 703-306-4198. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



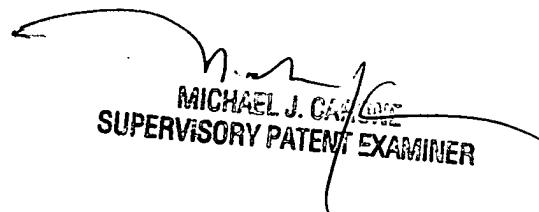
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Elizabeth A. Shaw  
Examiner  
Art Unit 3644

July 23, 2004



MICHAEL J. CASPER  
SUPERVISORY PATENT EXAMINER